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Heart Failure

MEAN PLATELET VOLUME ON ADMISSION AS A PREDICTOR OF LONG-TERM MORTALITY IN PATIENTS WITH HEART FAILURE AND PRESERVED EJECTION FRACTION

ACC Moderated Poster Contributions
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Session Title: Unraveling Heart Failure with Preserved Ejection Fraction
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Background: Mean Platelet volume has been known to predict adverse cardiovascularevents in patients with ischemic heart disease. Since diastolic dysfunction is one of the earliest abnormalities with myocardial ischemia, we aimed to investigate the prognostic significance of MPV on admission in patients admitted for heart failure with preserved ejection fraction (HFPEF).

Methods: All consecutive patients admitted to Montefiore Medical Center with congestive symptoms, ejection fraction >50% and echocardiographic evidence of diastolic dysfunction were included. Adjusted Hazard Ratios (HR) for mortality were estimated using multiple Cox proportional hazard models. Proportional hazard assumptions were met.

Results: Overall, 14648 patients were included from Jan, 2000 - June Dec 2010. On average, they were 71 yrs old, 40% were males, 40% were Caucasians. We observed an approximately linear adjusted association between increasing MPV and increasing mortality (adjusted hazard ratio [HR] 1.19 per 1 fl higher MPV, 95% CI: 1.15 - 1.22). We also noticed an increased risk of experiencing mortality among patients with abnormally elevated MPV [>10.5 fl (HR 0.1.43, 95% CI 1.37 - 1.49)] compared to those with a normal MPV (see table for more results). We observed no interaction by antiplatelet therapy, platelet count, and coexistant significant coronary disease.

Table denoting association between mean platelet volume and adjusted hazards (95% confidence interval) of mortality in patients with heart failure and preserved ejection fraction.

	Model 1*	Model 2**	Model 3***
Low MPV (<7.5 fl, n=2928)	0.96 (0.83-1.13)	0.93 (0.81- 1.06)	0.89 (0.82-1.01)
Normal MPV (7.5-10.5 fl, n=7611)	1.0 (Reference)	1.0 (Reference)	1.0 (Reference)
High MPV (>10.5 fl, n=4109)	1.24 (1.12 – 1.36)	1.32 (1.21 - 1.44)	1.43 (1.37 - 1.49)
MPV (per 1 fl increase)	1.08 (0.91-1.16)	1.30 (1.02-1.67)	1.19 (1.15-1.22)

MPV: Mean Platelet Volume
*Model 1: Unadjusted.
**Model 2: Adjusted for age, sex, ethnicity and race.
***Model 3: Adjusted for age, sex, ethnicity, race, diabetes mellitus, hypertension, history of prior myocardial infarction, cerebrovascular disease, hypercholesterolemia, chronic lung disease, smoking status, alcohol intake, illicit drug use, anemia, anti-platelet therapy, other medications used, platelet count, mean red cell volume, and total leukocyte count.

Conclusions: Elevated mean platelet volume on admission was independently associated with worse long term mortality in patients with HFPEF.